

NAVY TRAINING SYSTEM PLAN

FOR THE

A/E37T-24A AND A/F37T-16A SHAFT ENGINE TEST INSTRUMENTATION

N78-NTSP-A-50-0206/A
AUGUST 2003



A/E37T-24A AND A/F37T-16A SHAFT ENGINE TEST INSTRUMENTATION EXECUTIVE SUMMARY

The A/E37T-24A and A/F37T-16A Shaft Engine Test Instrumentation (SETI) System is a newly developed system that will replace the A/F37T-16 and the A/E37T-24 Turboshaft Engine Test Systems throughout the Navy and Marine Corps, at shore-based indoor and mobile test facilities. The SETI System will provide an integrated, computer-based measurement and automation system for the United States Navy and United States Marine Corps to test turboshaft engines at the intermediate maintenance level. The acquisition and integration of the SETI System with the respective Test Program Sets (TPS) is being accomplished in multiple phases. Phase I was initiated in Fiscal Year (FY) 02 with a contract for the development of a prototype SETI System and the development of the T58, T64, and T700 TPSs. Phase II is the competitive production contract estimated to be awarded in March 2005. Delivery of one prototype and 35 production units for Phase II are planned for FY05 through FY08. This Navy Training System Plan addresses the training requirements for proper operation and maintenance of this system.

The SETI System is in the System Development and Demonstration phase of the Defense Acquisition System. Initial Operating Capability is planned for January 2006. The Material Support Date and Navy Support Date are planned for December 2007.

The SETI System will be operated and maintained by Navy personnel assigned to the Aircraft Intermediate Maintenance Departments (AIMD) ashore. Operator and maintenance personnel will be Aviation Machinist's Mates (AD) assigned to Engine Test Cell Work Center 450 with Navy Enlisted Classification (NEC) code 6422. System operation requires two Technicians, one AD 6422 and one Safety Observer, usually an Aviation Machinist Mate or Aviation Electrician's Mate. Program Manager, Air 205 has made an official request to the Chief of Naval Operations to utilize personnel with NEC 6701 for maintenance and troubleshooting of computers utilized in the SETI System. Marine Corps personnel with secondary Military Occupational Specialty 6023 will operate and maintain the SETI System at assigned Marine Aviation Logistics Squadrons. Maintenance of the SETI System is based on the scheduled and unscheduled maintenance concept in accordance with the Naval Aircraft Maintenance Program, Chief of Naval Operations Instruction 4790.2 (series). The SETI System is being recommended for a Commercial for Life assignment for depot maintenance.

Familiarization training for the Technical Evaluation personnel from NAVAIR Patuxent River, Maryland and the Naval Air Technical Data and Engineering Service Command (NATEC) was performed by the contractor in June 2003, both during and after installation of the prototype.

NATEC instructors will provide training to Fleet intermediate level operators and maintainers at the time of Fleet installation, and thereafter training will most likely be conducted as hands-on, on-site, in the form of On-the-Job Training on an as-required basis.

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LIST OF ACRONYMS

ACDU Active Duty

AD Aviation Machinist's Mate AE Aviation Electrician's Mate

AIMD Aircraft Intermediate Maintenance Department

ALSP Acquisition Logistics Support Plan

AMTCS Aviation Maintenance Training Continuum System

AR Active Reserve

AT Aviation Electronics Technician

BIT Built-In Test

CBT Computer-Based Training
CFY Current Fiscal Year

CM Corrective Maintenance

CNATT Center for Aviation Technical Training

CNO Chief of Naval Operations
COMLANTFLT COMPACFLT CSE Chief of Naval Operations
Commander, Atlantic Fleet
Commander, Pacific Fleet
Common Support Equipment

DA Developing Agency
DT Developmental Test

ECP Engineering Change Proposal

FY Fiscal Year

HPRR Human Performance Readiness Review

I&CInstrumentation and ControlIOCInitial Operating CapabilityIPBIllustrated Parts BreakdownISSInterim Supply Support

JETI Jet Engine Test Instrumentation

JRB Joint Reserve Base

MALS Marine Aviation Logistics Squadron

MCAS Marine Corps Air Station



LIST OF ACRONYMS

MOS Military Occupational Specialty

MSD Material Support Date

MTIP Maintenance Training Improvement Program

NA Not Applicable NAF Naval Air Facility

NAMP Naval Aviation Maintenance Program

NAS Naval Air Station

NATEC Naval Air Technical Data and Engineering Service Command

NAVAIR
NAVICP
NAVMAC
NAVPERSCOM
Naval Air Systems Command
Naval Inventory Control Point
Navy Manpower Analysis Center
Naval Personnel Command

NAVPERSCOM Naval Personnel Command NEC Navy Enlisted Classification

NPDC Naval Personnel Development Command NETC Naval Education and Training Command

NS Naval Station NSD Navy Support Date

NTSP Navy Training System Plan

OEM Original Equipment Manufacturer

OJT On-the-Job Training

OPNAV Office of the Chief of Naval Operations

OPNAVINST Office of the Chief of Naval Operations Instruction

OPO OPNAV Principal Official

PDA Principal Development Activity
PDF Portable Document Format

PFY Previous Fiscal Year
PM Preventive Maintenance
PMA Program Manager, Air

PMOS Primary Military Occupational Specialty
PNEC Primary Navy Enlisted Classification
PSICP Program Support Inventory Control Point

SE Support Equipment SELRES Selected Reserves

SETI Shaft Engine Test Instrumentation SMCR Selected Marine Corps Reserve



LIST OF ACRONYMS

SMOS Secondary Military Occupational Specialty SNEC Secondary Navy Enlisted Classification

TAR Training and Administration of the Naval Reserve

TECHEVAL Technical Evaluation
TM Technical Manual
T/O Table of Organization
TPS Test Program Set

UIC Unit Identification Code
USMC United States Marine Corps

USN United States Navy

XML Extensible Markup Language



This Approved Navy Training System Plan (NTSP) for the Shaft Engine Test Instrumentation (SETI) System program. This NTSP has been written in compliance with guidelines set forth in the Navy Training Requirements Documentation Manual, Chief of Naval Operations (OPNAV) Publication P-751-3-9-97. The following notes apply:

- ° Part II lists only billets required to support the SETI System.
- ° It was not necessary to develop Parts III and IV, since the SETI System does not require a training track or formal training.

PART I - TECHNICAL PROGRAM DATA

A. NOMENCLATURE-TITLE-PROGRAM

- **1. Nomenclature-Title-Acronym.** A/E37T-24A, A/F37T-16A Shaft Engine Test Instrumentation (SETI) System
 - 2. Program Element. 0204161N

B. SECURITY CLASSIFICATION

1.	System Characteristics	Unclassified
2.	Capabilities	Unclassified
3.	Functions	Unclassified

C. MANPOWER, PERSONNEL, AND TRAINING PRINCIPALS

OPNAV Principal Official (OPO) Program Spon	sor CNO (N785D)
OPO Resource Sponsor	CNO (N785D)
Developing Agency	NAVAIR Lakehurst
Training Agency	COMLANTFLT (N731) COMPACFLT (N70) CNATT (FID N5)
Training Support Agency	NAVAIR (PMA205)
Manpower and Personnel Mission Sponsor	NAVPERSCOM (PERS-4, PERS-404)
Director of Naval Education and Training	CNO (N00T)

D. SYSTEM DESCRIPTION

1. Operational Uses. The SETI System will provide an integrated computer-based measurement and automation system for intermediate maintenance level testing of Navy and Marine Corps turboshaft engines. The SETI System and its associated Test Program Sets (TPS) will utilize the existing Jet Engine Test Instrumentation (JETI) technology, and integrate this capability into existing shore-based indoor and mobile (A/F37T-16 and A/E372T-24) engine test systems. This enhanced capability will allow for full performance engine testing of the T58-GE-

16, T58-GE-402, T64-GE-413, T64-GE-416, T64-GE-416A, T64-GE-419, T700-GE-401, and T700-GE-401C Turboshaft Engines. An Engineering Change Proposal (ECP) will be developed to upgrade the existing engine test systems.

The SETI System will utilize existing JETI technology to allow for full interface with the JETI system Electrical/Mechanical Junction Boxes and will replace existing A/E37T-24 Engine Test System Instrumentation.

The SETI System has distinctive designations and part numbers depending on the application. It is designated:

- A/F37T-16A, part number 3654AS7000-2, when incorporated into the fixed facility configuration
- A/E37T-24A, part number 3654AS7000-1, when integrated into the mobile configuration
- 2. Foreign Military Sales. Not Applicable (NA)
- **E. DEVELOPMENTAL TEST AND OPERATIONAL TEST.** Testing has not yet been conducted. Developmental Test (DT) and Technical Evaluation (TECHEVAL) are scheduled for June 2003 through December 2003 at NAVAIR Patuxent River with the installation of an A/E37T-24A prototype to test the T64 TPS.

The Original Equipment Manufacturer (OEM) contractor will provide logistics support for the SETI System prototype during DT, TECHEVAL, and TPS validation/verification. This support will include providing spares, system repair, contractor engineering technical services, familiarization training, and development of technical documentation to evaluate logistics supportability.

F. AIRCRAFT AND/OR EQUIPMENT/SYSTEM/SUBSYSTEM REPLACED. The SETI System is the planned replacement for the A/F37T-16 and A/E37T-24 Engine Test Instrumentation Systems.

G. DESCRIPTION OF NEW DEVELOPMENT

1. Functional Description. The SETI System is a JETI-based engine test system that will provide a computer-based measurement and automation system for the purpose of intermediate level testing of aircraft turboshaft engines in either indoor or outdoor environments ashore. The system's capabilities will include instrumentation, data acquisition, engine and facility control, and status display. The basic system will consist of the necessary hardware and software to acquire raw analog engine data, perform signal conditioning and time averaging,

perform specific engine performance calculations, and output the data results to a video display, printer, and magnetic media. The hardware elements will include programming harness boxes, electrical and mechanical junction boxes, and cable assemblies to interface the computerized instrumentation, data acquisition, and control systems with the engine, fuel and lubrication system, and facility. It will also have the capability to perform diagnostic troubleshooting on the engine under test and determine engine stability to enable the system to automatically record data at engine stabilization. The SETI System will interface two major functional elements: the engine under test and the test facility. The SETI System will be operated worldwide at Naval Air Stations (NAS) and Marine Corps Air Stations (MCAS). The system will generally be installed in a transportable Instrumentation and Control (I&C) cab in order to withstand extremes of temperature and humidity, as well as contamination by dust, sand, salt, fog, and corrosive precipitation. SETI Systems not installed in the I&C cab will be installed in a shore-based enclosed engine test facility. Whether the I&C cab is used as a fixed or as an open test facility, the system will always be operated as a fixed test system at shore-based locations.

- **2. Physical Description.** The system design details regarding the physical characteristics (such as the dimensions and weight) of the SETI System are unavailable. These details will be included in updates to this NTSP.
- **3. New Development Introduction.** The SETI System will be introduced as a new production system.
- **4. Significant Interfaces.** The SETI System will interface with existing JETI test systems using common hardware such as electrical junction boxes, mechanical junction boxes, and power supplies, but will have separate programming harness boxes, electrical and mechanical junction boxes, and cable assemblies.
 - 5. New Features, Configurations, or Material. NA

H. CONCEPTS

1. Operational Concept. The SETI System will be operated and maintained by Navy personnel assigned to Aircraft Intermediate Maintenance Departments (AIMD). Operator and maintenance personnel will be Aviation Machinist's Mates (AD) assigned to Engine Test Cell Work Center 450 with Navy Enlisted Classification (NEC) code 6422. System operation requires a total of two Technicians, one AD 6422 and One Safety Observer-Maintenance Man, usually an Aviation Machinist Mate or Aviation Electrician's Mate (AE). Marine Corps personnel with secondary Military Occupational Specialty (MOS) 6023 will operate and maintain the SETI System at assigned Marine Aviation Logistics Squadrons (MALS).

- **2. Maintenance Concept.** Maintenance of the SETI System is based on the scheduled and unscheduled maintenance concept in accordance with the Naval Aircraft Maintenance Program (NAMP), Chief of Naval Operations Instruction (OPNAVINST) 4790.2 (series).
- **a. Organizational.** There is no organizational level maintenance on the SETI System.
- **b. Intermediate.** Intermediate level maintenance personnel will perform maintenance tasks and systems calibration, including daily and pre-operational inspections, Preventive Maintenance (PM), and servicing, in addition to Corrective Maintenance (CM) for most of the components (i.e., troubleshooting, repairing, or replacing). Built-In Test (BIT) will be the primary means of troubleshooting the system. Non-repairable components will be forwarded to the depot level for evaluation and repair or replacement.
- (1) Preventive Maintenance. PM on the SETI System will be conducted at specific intervals in accordance with procedures established on Maintenance Requirement Cards. PM actions include but are not limited to corrosion inspection, cleaning, lubrication, and pre- and post-operational inspections.
- (2) Corrective Maintenance. CM will consist of fault isolation to the failed component or subassembly, replacement of defective or failed items, functional check for proper operation, and calibration by the AIMD Calibration Laboratory.
- **c. Depot.** The depot level of maintenance supports lower levels of maintenance by providing logistics and engineering assistance and performing maintenance that is beyond the capability of the lower level activities.
- **d. Interim Maintenance.** Additional assistance will be provided by either Naval Air Technical Data and Engineering Service Command (NATEC) personnel or the manufacturer.
- **e.** Life Cycle Maintenance Plan. The SETI System is being recommended for a Commercial for Life assignment for depot maintenance.
- **3. Manning Concept.** The manning concept is based on functional operational requirements and maintenance workload. The Navy will utilize personnel with NECs 6422 and 6701. PMA205 has made an official request to the CNO to utilize personnel with the NEC 6701 for maintenance and troubleshooting of computers in the SETI System. Marine Corps personnel with secondary MOS 6023 will operate and maintain the SETI System. The addition of SETI to the intermediate level workload is only a percentage of the required workload for these NECs and MOS. No increase in manpower is required.
- a. Estimated Maintenance Man-Hours per Operating Hour (or Flight Hour). The SETI System is designed to meet a Mean Time Between Failures of 1,997 hours. The SETI System is designed to meet a Mean Time Between Maintenance Actions of 60 hours, with a

Mean Time To Repair at the intermediate level of two hours and a Maximum Time To Repair at the 95th percentile of four hours.

b. Proposed Utilization. The following table provides the utilization factors for both A/F37T-16A (fixed facility configuration) and A/E37T-24A (mobile configuration) SETI System configurations.

OPERATIONAL MISSION PROFILE UTILIZATION

	A/F37T-16A FIXED FACILITY CONFIGURATION	A/E37T-24A MOBILE CONFIGURATION
Typical Operations	365 days	365 days
Typical Daily Total of System Demand Time	8 hours (Standby + Operational)	8 hours (Standby + Operational)

c. Recommended Qualitative and Quantitative Manpower Requirements.

Currently, five activities that are scheduled to receive the SETI System do not reflect the NECs or MOS in their respective manpower documents to support the system. These five activities are noted in the table below.

ACTIVITY	NEC 6422	NEC 6701	MOS 6023
Joint Reserve Base (JRB) Willow Grove	3	0	0
Naval Air Facility (NAF) Atsugi	4	0	NA
NAS Norfolk	18	0	NA
NAS Sigonella	9	0	NA
NAS Mayport	6	0	NA

- **d. Marine Corps Intermediate Maintenance.** Marine Corps intermediate maintenance support is provided by the assigned MALS. The MALS has a structured core that is augmented by squadron billets identified in the appropriate Table of Organization (T/O). All intermediate level maintenance MOSs are assigned to the MALS or to the squadron's MALS augment.
- **4. Training Concept.** Training for the SETI System is hands-on, on-site, On-the-Job Training (OJT) to be presented by licensed Senior Test Cell Operators (E-5 and above) and

NATEC personnel per OPNAVINST 4720.2. OJT will be supplemented with Computer-Based Training (CBT).

CNO letter, Code N889H3 dated September 1992 gave the Naval Air Maintenance Training Group authorization to cancel other Engine Test Systems Turbine training and gave responsibility of training to NATEC and the local AIMDs.

The established training concept for most aviation maintenance training divides "A" School courses into two or more segments called *Core* and *Strand*. "A" School *Core* courses include general knowledge and skills training for the particular rating, while "A" School *Strand* courses focus on the more specialized training requirements for that rating and a specific aircraft or equipment, based on the student's fleet activity destination. *Strand* training immediately follows *Core* training and is part of the "A" School. According to the Manning Concept, NEC 6422 and 6701, and MOS 6023 are the actual prerequisites.

- **a. Initial Training.** Operator and maintainer familiarization training for TECHEVAL and related technical personnel is to be accomplished by the contractor prior to Government testing. The contractor will train technical personnel, including NATEC and some Fleet representatives as part of the Phase I Prototype contract requirements.. Fleet training course development and Fleet cadre training course(s) will be acquired on the Phase II contract.
- (1) **Operator.** The plan is to develop CBT operation and intermediate maintenance training courses for the intermediate maintenance level Fleet user. NATEC instructors will utilize these training courses when providing training to Fleet intermediate level operators at the time of installation.
- (2) Maintenance. Maintenance training will be conducted concurrently with operator training.
- **b. Follow-on Training.** NATEC instructors will be available to conduct training as hands-on, on-site, in the form of OJT on an as-required basis. It is anticipated that the SETI System will have CBT developed that will be similar to the CBT for the JETI System. There is no requirement to procure computers to support the CBT; current on-site computer assets are sufficient.

c. Student Profiles

SKILL IDENTIFIER	PREREQUISITE SKILL AND KNOWLEDGE REQUIREMENTS
AD 6422 (Note 1)	 C-601-2011, Aviation Machinist's Mate Common Core Class A1 and C-601-2012, Aviation Machinist's Mate Helicopter Fundamentals Strand Class A1 or C-601-2013, Aviation Machinist's Mate Turboprop Fundamentals Strand Class A1 or C-601-2014, Aviation Machinist's Mate Turbojet Fundamentals Strand Class A1
AE (Note 2)	 C-100-2020, Avionics Common Core Class A1 and C-602-2039, Aviation Electrician's Mate Strand Class A1
AT 6701	 C-100-2020, Avionics Common Core Class A1 And C-100-2017 Avionics Technician I level Class A1 or C-100-2018, Avionics Technician O Level Class A1 and C-100-2012, Advanced Avionics Integrated Weapons System Maintenance
MOS 6023 (Note 3)	 C-601-2011, Aviation Machinist's Mate Common Core Class A1 and C-601-2012, Aviation Machinist's Mate Helicopter Fundamentals Strand Class A1

Note 1: The courses listed are for the AD rating. NEC 6422 does not have any associated courses; it is OJT awardable.

Note 2: C-602-2039 will eventually be replaced with C-602-2042, Aviation Electrician's Mate Intermediate Maintenance Level Strand Class A1.

Note 3: The courses listed are prerequisites for MOS 6122, 6123, and 6124. Personnel with these MOSs will receive OJT on the SETI System and will then be awarded a secondary MOS (i.e., MOS 6023).

d. Training Pipelines. All training tracks for Test Cell Operators were cancelled per CNO letter, Code N889H3 dated September 1992. Currently, there is no plan to re-establish a training track to support this or other test cell systems.

I. ONBOARD (IN-SERVICE) TRAINING

1. Proficiency or Other Training Organic to the New Development

- **a. Maintenance Training Improvement Program.** Current planning is to adopt the Aviation Maintenance Training Continuum System (AMTCS) concepts to replace Maintenance Training Improvement Program (MTIP). AMTCS began full implementation for Fleet deployment in Fiscal Year (FY) 03. AMTCS implementation for the SETI System is undetermined at this time. The SETI implementation information will be provided in updates to this NTSP as it become available.
- **b.** Aviation Maintenance Training Continuum System. The AMTCS will provide career path training to the Sailor or Marine from their initial service entry to the end of their military career. AMTCS concepts will provide an integrated system that will satisfy the training and administrative requirements of both the individual and the organization. The benefits will be manifested in the increased effectiveness of the technicians and the increased efficiencies of the management of the training business process. Where appropriate, capitalizing on technological advances and integrating systems and processes can provide the right amount of training at the right time, thus meeting the CNO's mandated "just-in-time" training approach.

Technology investments enable the development of several state-of-the-art training and administrative tools: interactive multimedia instruction for the technicians in the fleet in the form of interactive courseware with computer managed instruction and computer aided instruction for the schoolhouse

Included in the AMTCS development effort is the Aviation Maintenance Training Continuum System - Software Module, which provides testing (test and evaluation), recording (electronic training jacket), and a feedback system. The core functionality of these AMTCS tools are based and designed around the actual maintenance-related tasks the technicians perform, and the tasks are stored and maintained in a Master Task List data bank. These tools are procured and fielded with appropriate commercial off-the-shelf hardware and software, i.e., Fleet training devices - laptops, personal computers, electronic classrooms, learning resource centers, operating software, and network software and hardware.

Upon receipt of direction from OPNAV (N789H), AMTCS concepts are to be implemented and the new tools integrated into the daily training environment of all participating aviation activities and supporting elements. AMTCS will serve as the standard training system for aviation maintenance training within the Navy and Marine Corps, and is planned to supersede the existing MTIP and Maintenance Training Management and Evaluation Program (MATMEP) programs. For more information on AMTCS, refer to PMA205B1.

- 2. Personnel Qualification Standards. NA
- **3. Other Onboard or In-Service Training Packages.** Training for the SETI System is hands-on, on-site, OJT to be presented by licensed senior test cell operators (E-5 and above) and NATEC personnel. OJT will be supplemented with CBT.

J. LOGISTICS SUPPORT

1. Manufacturer and Contract Numbers

CONTRACT NUMBER	MANUFACTURER	ADDRESS
N68335-02-C-0005	Racal Instruments Inc.	4 Goodyear Street Irvine, CA 92618

- **2. Program Documentation.** NAVAIR Lakehurst, Code 3.1.4.4, has developed an Acquisition Logistics Support Plan (ALSP) Draft, A-Q1-2002-36, dated 15 April 2003...
- **3. Technical Data Plan.** A Technical Manual (TM) for Operation and Intermediate Maintenance with Illustrated Parts Breakdown (IPB) will be developed for the SETI System. The currently available JETI data will be supplemented to provide sufficient technical detail for SETI System use. The end item TM (AG-SETI-MIB-000) will address the SETI System in the T-24 configuration. Separate work packages will provide for the distinctive installation and facility interfaces. This TM will be delivered in both digital Portable Document Format (PDF) and Extensible Markup Language (XML).

In-process reviews will be conducted at 30, 60, and 90 percent completion and verified on an installed system at a Navy AIMD activity. In-process reviews will be held in conjunction with Preliminary Design Review, Critical Design Review, and TECHEVAL.

The engine adapter TMs for the T58, T64, and T700 engines will be developed and/or revised, and delivered in PDF and XML. These TMs are for Operation and Intermediate Maintenance with IPB for the respective engine adapters.

Additionally, Preoperational and Periodic Maintenance Requirements Cards will be developed for the SETI System.

4. Test Sets, Tools, and Test Equipment. Design emphasis is to prioritize use of existing Common Support Equipment (CSE), as considered necessary. The contractor will prepare a list of Support Equipment (SE) candidates to identify the SE required to support the SETI System. The Government will provide the recommended CSE to support the SETI System.

5. Repair Parts. The Interim Supply Support (ISS) period for the SETI System is to take place from Initial Operating Capability (IOC) in January 2006 until the Material Support Date (MSD) and Navy Support Date (NSD), both December 2007. During the ISS period, parts will be acquired via a separately negotiated contract. Interim spares will be stored and managed at the Government's ISS warehouses at NAS North Island, California, and MCAS Beaufort, North Carolina.

Once the MSD and NSD are achieved, supply support for the SETI System will be managed under the Program Support Inventory Control Point (PSICP) concept. The Naval Inventory Control Point (NAVICP) in Philadelphia, Pennsylvania, is the PSICP representative. Item selection and provisioning of the SETI System is to be accomplished after the release for production decision has been made. Application of total or a modified commercial support approach will be evaluated for feasibility.

6. Human Systems Integration. SETI System design and its associated Test Program Sets (TPS) address the human-machine interface for operators, maintainers, and support personnel. The design processes conformed to best standard human engineering practices as defined in existing human factors engineering design standards. The human performance characteristics of the SETI user population are defined by the program manager and the personnel community based on the system description, projected characteristics of target occupational specialties, and recruitment and retention trends. To the maximum extent possible, systems do not require special cognitive, physical, or sensory skills beyond those found in the specified user population. For any skill requirements that exceed the knowledge, skills, and abilities of current military occupational specialties or that require additional skill indicators or hard-to-fill military occupational specialties, the program manager shall consult with personnel communities to identify readiness, PERSTEMPO, and funding issues that impact program execution. An HSI plan was not developed but a Front End Analysis (FEA) will be performed before CBT training is developed, the curricula delivery methods that will be employed to teach SETI are a blend of NATEC, CBT and OJT instruction. All ICW and CBT must be Sharable Content Object Reference Model (SCORM) conformant as per Executive Order 13111 guidance, and conform with the technical standards to run in the intended environment: classroom, automated electronic classroom, learning resource center, Navy e-learning, AMTCS, or desktop (NMCI ashore or IT21 afloat). This system has no habitability impact. Manpower issues are covered in part II and III of this document. The ECP process, in accordance with NAVAIRINST 4130.1C, is utilized to initiate upgrades to operational and training systems and allows for inputs to the affect on the human and MPT. All new engineering change proposals for SETI take into consideration the human-machine interface for Operators, Maintainers and Support Personnel. In its current state of design, SETI contains no explosive, radioactive, or carcinogenic materials. Toxic materials that have been documented are present in small amounts and in forms that present no hazard during any phase of system ownership, including disposal. If the unit were to be incinerated, limited amounts of corrosive vapors would be generated by the decomposition of wire insulation. This is common to all electronic equipment meeting the requirements to operate in the specified environments. Environmental and Occupational Safety and Health requirements

meet federal, state, and local standards, regulations, and directives and are enforced by respective agencies, as applicable.

K. SCHEDULES

1. Installation and Delivery Schedules. The acquisition and integration of the SETI System with respective TPSs is being accomplished in multiple phases. Phase I was initiated in FY02 with a contract for the development of a prototype SETI System and the development of the T58, T64, and T700 TPSs. Phase II is the competitive production contract estimated to be awarded in June 2005. Delivery of one prototype to NAVAIR Patuxent River is scheduled for FY03. At this time, there is no schedule for the 35 production units, as the contract has not yet been competed. Current planning is for Phase II production units to be delivered during a four-year period (FY06 through FY09). A table showing installation dates and ready for operational use dates will be provided in updates to this NTSP. The following table provides the proposed distribution of SETI Systems and respective TPSs for Phase I and Phase II.

PROPOSED DISTRIBUTION

	SETI CONFI	ETI CONFIGURATION RESPECTIVE TPS			ГРЅ
ACTIVITY	A/E37T-16A	A/E37T-24A	T-58	T-64	T-700
NAS Patuxent River		3	1	1	1
JRB Atlanta		1			1
JRB NAS Willow Grove		1		1	
MCAS Camp Pendleton (MALS-39)	2		1		1
MCAS Futenma (MALS-36)	3		1	1	1
MCAS Kaneohe Bay		1		1	
MCAS Miramar (MALS-16)	2	1	2	2	
MCAS New River(MALS-26)		3	1	1	1
MCAS New River (MALS-29)		3	1	1	2
MCAS Quantico		3	1	1	1
NAF Atsugi		2	1		2
NAS Norfolk		3	1	1	2
NAS North Island		3	1		2
NAS Sigonella	2		1	1	
Naval Station (NS) Mayport		2			2

- **2.** Time Required to Install at Operational Sites. The initial test installation is planned to take approximately 18 days. DT and TECHEVAL will require an additional 120 days. This results in approximately five and one-half months to accomplish the first installation. Refinements in the installation procedure are expected to lower the time required at the operational sites.
 - 3. Foreign Military Sales and Other Source Delivery Schedule. NA
 - 4. Training Device and Technical Training Equipment Delivery Schedule. NA

L. GOVERNMENT-FURNISHED EQUIPMENT AND CONTRACTOR-FURNISHED EQUIPMENT TRAINING REQUIREMENTS. NA

M. RELATED NTSPs AND OTHER APPLICABLE DOCUMENTS

DOCUMENT OR NTSP TITLE	DOCUMENT OR NTSP NUMBER	PDA CODE	STATUS
Jet Engine Test Instrumentation (JETI) NTSP	N78-NTSP-A-50-0102/P	PMA205	Proposed May 03
Gas Turbine Engine Test Systems NTSP	N88-NTSP-A-50-8616B/A	PMA205	Approved Aug 98
Acquisition Logistics Support Plan (ALSP), A/E37T-24A, Shaft Engine Test Instrumentation (SETI)	A-Q1-2002-36	NAVAIR Lakehurst Code 3.1.4.4	April 2003

PART II - BILLET AND PERSONNEL REQUIREMENTS

The SETI is replacing an existing engine test cell and will not result in the deactivation of any activities. Additionally, billets will not be added or deleted. Since the SETI operators and maintainers are trained using OJT, there are no requirements for instructor billets or chargeable student billets. The following elements are not affected by the SETI and therefore are not included in Part II of this NTSP:

II.A. Billet Requirements

- II.A.2.a Operational and Fleet Support Activity Deactivation Schedule
- II.A.2.b Billets To Be Deleted For Operational And Fleet Support Activities
- II.A.2.c Total Billets To Be Deleted For Operational And Fleet Support Activities
- II.A.3 Training Activities Instructor And Support Billet Requirements
- II.A.4 Chargeable Student Billet Requirements

II.B Personnel Requirements

II.B.1 Annual Training Input Requirements

Note: This Part of the SETI NTSP reflects intermediate level maintenance billet and personnel requirements. For the Navy it is a compilation of NECs 6422 and 6701. Marine Corps personnel with primary MOS 6122, 6123, or 6124 and secondary MOS 6023 are represented. The addition of SETI to the intermediate level workload is only a percentage of the required workload for these NECs and MOSs.

PART II - BILLET AND PERSONNEL REQUIREMENTS

II.A. BILLET REQUIREMENTS

SOURCE OF MANPOWER USN:Total Force Manpower Management SystemDATE:February 2003SOURCE OF MANPOWER USMC:Extracts from Table of OrganizationDATE:February 2003

II.A.1.a. OPERATIONAL AND FLEET SUPPORT ACTIVITY ACTIVATION SCHEDULE

ACTIVITY, UIC		PFYs	CFY03	FY04	FY05	FY06	FY07
OPERATIONAL ACTIVITIES - USMC HMX-1, MCAS Quantico TOTAL:	55173	1	0	0	0	0	0
FLEET SUPPORT ACTIVITIES - USN JRB NAS Atlanta RAIMD	44486	1	0	0	0	0	0
JRB NAS Willow Grove RAIMD	44493	1	0	0	0	0	0
NAS Norfolk AIMD	44325	1	Ö	0	0	Ö	0
NAS Sigonella AIMD	44330	1	0	0	0	0	0
NAVTEST WINGLANT, NAS Patuxent River	39782	1	0	0	0	0	0
NS Mayport AIMD	45459	1	0	0	0	0	0
COMSEACONTROLWINGPAC DET AIMD	44326	1	0	0	0	0	0
NAF Atsugi AIMD	44323	1	0	0	0	0	0
TOTAL:		8	0	0	0	0	0
FLEET SUPPORT ACTIVITIES - USMC							
MALS-26, MCAS New River	09167	1	0	0	0	0	0
MALS-29, MCAS New River	52841	1	0	0	0	0	0
MALS-42, JRB Atlanta	67236	1	0	0	0	0	0
MALS-16, MCAS Miramar	01020	1	0	0	0	0	0
MALS-24 (-), MCAS Kaneohe Bay	01071	1	0	0	0	0	0
MALS-39, MCAS Camp Pendleton	01158	1	0	0	0	0	0
MALS-36, MCAS Futenma	01024	1	0	0	0	0	0
TOTAL:		7	0	0	0	0	0

II.A.1.b. BILLETS REQUIRED FOR OPERATIONAL AND FLEET SUPPORT ACTIVITIES

ACTIVITY, UIC, PHASING INCREMENT	BILLI OFF	ETS ENL	DESIG/ RATING	PNEC/ PMOS	SNEC/ SMOS
OPERATIONAL ACTIVITIES - USMC					
HMX-1, MCAS Quantico, 55173 USMC	0	1	GYSGT	6123	6023
ACTIVITY TOTAL:	0	1			
FLEET SUPPORT ACTIVITIES - USN					
JRB NAS Atlanta RAIMD, 44486 SELRES	0	1	AE1	6701	
ACTIVITY TOTAL:	0	1			
JRB NAS Willow Grove RAIMD, 44493 TAR	0	1 2	AD1 AD2	6422 6422	
ACTIVITY TOTAL:	0	3			
NAS Norfolk AIMD, 44325 ACDU	0 0 0 0	1 3 8 3	ADC AD1 AD2 AD3	6422 6422 6422 6422	
SELRES	0 0	1 2	ADC AD2	6422 6422	
ACTIVITY TOTAL:	0	18			
NAS Sigonella AIMD, 44330 ACDU	0 0 0 0	1 2 1 1 4	ADC AD1 AD1 AD1 AD2	6422 6422 6422 6422 6422	6418 6419 6424
ACTIVITY TOTAL:	0	9			
NAVTEST WINGLANT, NAS Patuxent River, 39782 ACDU	0 0 0	5 1 1	AD2 AD3 ATC	6422 6422 6701	
ACTIVITY TOTAL:	0	7			

II.A.1.b. BILLETS REQUIRED FOR OPERATIONAL AND FLEET SUPPORT ACTIVITIES

ACTIVITY, UIC, PHASING INCREMENT	BILL OFF	ETS ENL	DESIG/ RATING	PNEC/ PMOS	SNEC/ SMOS
NS Mayport AIMD, 45459 ACDU	0 0 0	1 2 3	AD1 AD2 AD3	6422 6422 6422	
ACTIVITY TOTAL:	0	6			
COMSEACONTROLWINGPAC DET AIMD, NAS North Is ACDU	0 0 0 0 0 0 0	6 1 1 2 3 3 3 1	ADC AD1 AD1 AD2 AD2 AD2 AD2 AD1 AT1	6421 6421 6426 6419 6421 6426 6701	6422 6422 6422 6422 6422 6422
ACTIVITY TOTAL:	0	15			
NAF Atsugi AIMD, 44323 ACDU ACTIVITY TOTAL:	0 0	1 3 4	AD1 AD2	6422 6422	
FLEET SUPPORT ACTIVITIES - USMC					
MALS-26, MCAS New River, 09167 USMC	0 0 0 0 0	3 1 1 1 1 1	CPL CPL CPL SGT SGT SGT SSGT	6122 6123 6124 6122 6123 6124 6123	6023 6023 6023 6023 6023 6023 6023
ACTIVITY TOTAL:	0	9			
MALS-29, MCAS New River, 52841 USMC	0 0 0 0 0	4 1 2 1 1	CPL CPL SGT SGT SSGT	6123 6124 6122 6124 6122	6023 6023 6023 6023 6023
ACTIVITY TOTAL:	U	9			

II.A.1.b. BILLETS REQUIRED FOR OPERATIONAL AND FLEET SUPPORT ACTIVITIES

ACTIVITY, UIC, PHASING INCREMENT	BILL OFF	ETS ENL	DESIG/ RATING	PNEC/ PMOS	SNEC/ SMOS
MALS-42, JRB Atlanta, 67236 USMC SMCR	0 0 0 0	1 1 2 1	CPL CPL SGT SSGT	6124 6124 6124 6124	6023 6023 6023 6023
ACTIVITY TOTAL:	0	5			
MALS-16, MCAS Miramar, 01020 USMC	0 0 0 0 0	1 2 1 1 1	CPL CPL GYSGT SGT SGT SSGT	6122 6123 6123 6122 6123 6122	6023 6023 6023 6023 6023 6023
ACTIVITY TOTAL:	0	7			
MALS-24 (-), MCAS Kaneohe Bay, 01071 USMC	0 0 0	2 1 1	CPL SGT SSGT	6123 6123 6123	6023 6023 6023
ACTIVITY TOTAL:	0	4			
MALS-39, MCAS Camp Pendleton, 01158 USMC	0 0 0	3 3 1	CPL SGT SSGT	6124 6124 6124	6023 6023 6023
ACTIVITY TOTAL:	0	7			
MALS-36, MCAS Futenma, 01024 USMC	0 0 0 0 0	1 1 1 1 1	CPL CPL CPL SGT SGT SSGT	6122 6123 6124 6122 6123 6124	6023 6023 6023 6023 6023 6023
ACTIVITY TOTAL:	0	6			

II.A.1.c. TOTAL BILLETS REQUIRED FOR OPERATIONAL AND FLEET SUPPORT ACTIVITIES

DESIG/ RATING	PNEC/SNEC		CFY03 OFF ENL	FY04 OFF ENL	FY05 OFF ENL	FY06 OFF ENL	FY07 OFF ENL
USMC OPER	RATIONAL AC	TIVITIES - USMC					
GYSGT	6123 6023		0	0	0	0	0
USN FLEET	SUPPORT AC	CTIVITIES - ACDU					
ADC	6421 6422		0	0	0	0	0
ADC	6422	1	0	0	0	0	0
ADC	6422 6418		0	0	0	0	0
AD1	6421 6422	2 1	0	0	0	0	0
AD1 AD1	6422 6422 6419	1	0	0	0	0	0
AD1	6422 6424		0	0	0	0	0
AD1	6426 6422		0	0	0	0	0
AD2	6419 6422		0	0	Ö	0	Ö
AD2	6421 6422		0	0	0	0	0
AD2	6422	22	0	0	0	0	0
AD2	6426 6422	2 3	0	0	0	0	0
AD3	6422	7	0	0	0	0	0
AE1	6701	1	0	0	0	0	0
ATC AT1	6701 6701	1	0	0	0	0	0 0
AII	0701	ı	U	U	U	U	U
		CTIVITIES - TAR					_
AD1	6422	1	0	0	0	0	0
AD2	6422	2	0	0	0	0	0
		CTIVITIES - SELRES					
ADC	6422	1	0	0	0	0	0
AD2 AE1	6422 6701	2	0	0	0	0	0
AEI	0/01	1	U	U	U	U	U
		ACTIVITIES - USMC					
CPL	6122 6023		0	0	0	0	0
CPL CPL	6123 6023 6124 6023		0	0	0	0	0
GYSGT	6123 6023		0	0	0	0	0
SGT	6122 6023		0	0	0	0	0
SGT	6123 6023		0	0	0	0	Õ
SGT	6124 6023		0	0	0	0	0
SSGT	6122 6023	3 2	0	0	0	0	0
SSGT	6123 6023		0	0	0	0	0
SSGT	6124 6023	3 2	0	0	0	0	0
USMC FLEE	T SUPPORT	ACTIVITIES - SMCR					
CPL	6124 6023	3 1	0	0	0	0	0
SGT	6124 6023		0	0	0	0	0
SSGT	6124 6023	3 1	0	0	0	0	0

II.A.1.c. TOTAL BILLETS REQUIRED FOR OPERATIONAL AND FLEET SUPPORT ACTIVITIES

DESIG/ RATING	PNEC/SNEC PMOS/SMOS	PFYs OFF ENL	CFY03 OFF ENL	FY04 OFF ENL	FY05 OFF ENL	FY06 OFF ENL	FY07 OFF ENL		
SUMMARY	TOTALS:								
USMC OPE	RATIONAL ACTIV	/ITIES - USMC 1	0	0	0	0	0		
USN FLEET	SUPPORT ACTI	VITIES - ACDU 56	0	0	0	0	0		
USN FLEET	SUPPORT ACTI	VITIES - TAR 3	0	0	0	0	0		
USN FLEET	SUPPORT ACTI	VITIES - SELRES 4	0	0	0	0	0		
USMC FLEE	ET SUPPORT AC	TIVITIES - USMC 43	0	0	0	0	0		
USMC FLEE	ET SUPPORT AC	TIVITIES - SMCR 4	0	0	0	0	0		
GRAND TOTALS:									
USN - ACDL	J	56	0	0	0	0	0		
USN - TAR		3	0	0	0	0	0		
USN - SELR	ES	4	0	0	0	0	0		
USMC - USM	МС	44	0	0	0	0	0		
USMC - SM	CR	4	0	0	0	0	0		

II.A.5. ANNUAL INCREMENTAL AND CUMULATIVE BILLETS

DESIG/ RATING	PNEC/ PMOS	SNEC/ SMOS	BILLET BASE	CFY(+/-	O3 CUM	FY0 +/-	4 CUM	FY0: +/-	5 CUM	FY06 +/-	CUM	FY(+/-)7 Cum
a. OFFICE	R - USN	1	Not Applicab	le									
b. ENLIST	ED - USN	I											
Fleet Supply ADC ADC ADC AD1 AD1 AD1 AD2 AD2 AD2 AD3 AE1 ATC AT1	6421 6422 6422 6421 6422 6422 6422 6422	6422 6418 6422 6419 6424 6422 6422 6422 6422	d TAR 1 1 1 8 1 2 3 3 24 3 7 1 1		1 1 1 1 8 1 1 2 3 3 24 3 7 1 1		1 1 1 1 8 1 1 2 3 3 24 3 7 1 1		1 1 1 8 1 1 2 3 3 24 3 7 1 1		1 1 1 8 1 1 2 3 3 24 3 7 1 1		1 1 1 1 8 1 1 2 3 3 3 24 3 7 1 1 1
SELRES E ADC AD2 AE1			1 2 1	0 0 0	1 2 1	0 0 0	1 2 1	0 0 0	1 2 1	0 0 0	1 2 1	0 0 0	1 2 1
TOTAL U	SN ENLIS	TED BILL	ETS:										
Fleet Supp	oort		59	0	59	0	59	0	59	0	59	0	59
SELRES			4	0	4	0	4	0	4	0	4	0	4
c. OFFICE	R - USMO	C I	Not Applicab	le									
d. ENLISTED - USMC													
Operational GYSGT	al Billets U 6123	JSMC and 6023	AR 1	0	1	0	1	0	1	0	1	0	1
Fleet Supp CPL CPL CPL GYSGT	6122 6123 6124 6123	6023 6023 6023 6023 6023	d AR 5 10 7 1	0 0 0	5 10 7 1	0 0 0	5 10 7 1	0 0 0	5 10 7 1	0 0 0	5 10 7 1	0 0 0 0	5 10 7 1

II.A.5. ANNUAL INCREMENTAL AND CUMULATIVE BILLETS

DESIG/	PNEC/	SNEC/	BILLET	CFY	03	FY)4	FY	05	FY	06	FY	07
RATING	PMOS	SMOS	BASE	+/-	CUM								
SGT	6122	6023	5	0	5	0	5	0	5	0	5	0	5
SGT	6123	6023	4	Ö	4	Ö	4	Ö	4	Ö	4	Ö	4
SGT	6124	6023	5	0	5	0	5	0	5	0	5	0	5
SSGT	6122	6023	2	0	2	0	2	0	2	0	2	0	2
SSGT	6123	6023	2	0	2	0	2	0	2	0	2	0	2
SSGT	6124	6023	2	0	2	0	2	0	2	0	2	0	2
SMCR Bil	lets												
CPL	6124	6023	1	0	1	0	1	0	1	0	1	0	1
SGT	6124	6023	2	0	2	0	2	0	2	0	2	0	2
SSGT	6124	6023	1	0	1	0	1	0	1	0	1	0	1
TOTAL USMC ENLISTED BILLETS:													
Operation	al		1	0	1	0	1	0	1	0	1	0	1
Fleet Sup	port		43	0	43	0	43	0	43	0	43	0	43
SMCR			4	0	4	0	4	0	4	0	4	0	4

PART III - TRAINING REQUIREMENTS

CNO cancelled Engine Test Systems Turbine training and gave responsibility of training to NATEC and the local AIMDs. This training is provided as OJT and is conducted by selected NATEC personnel and licensed senior test cell operators (E-5 and above) on an as-required basis. Since there is no formal training, it was not necessary to develop Part III; the following elements are not included in this SETI NTSP:

III.A. Training Course Requirements

III.A.1. Initial Training Requirements

III.A.2. Follow-On Training

III.A.2.a. Existing Courses

III.A.2.b. Planned Courses

III.A.2.c. Unique Courses

III.A.3. Existing Training Phased Out

PART IV - TRAINING LOGISTICS SUPPORT REQUIREMENTS

SETI operators and maintainers are trained using OJT. Therefore, it was not necessary to develop Part IV and the following elements are not included in this NTSP:

- IV.A. Training Hardware
 - IV.A.1. TTE/GPTE/SPTE/ST/GPETE/SPETE
 - IV.A.2. Training Devices
- IV.B. Courseware Requirements
 - IV.B.1. Training Services
 - IV.B.2. Curricula Materials and Training Aids (Notes 1 and 2)
 - IV.B.3. Technical Manuals (Note 3)
- IV.C. Facility Requirements
 - IV.C.1. Facility Requirements Summary (Space/Support) By Activity
 - IV.C.2. Facility Requirements Detailed By Activity And Course
 - IV.C.3. Facility Project Summary By Program
- **Note 1:** It is anticipated that the SETI System will have CBT developed that will be similar to the CBT for the JETI System. When specific information becomes available, it will be added to updates to this NTSP.
- **Note 2:** There is no requirement to procure computers to support the CBT, as the current on-site computer assets are sufficient.
- **Note 3:** A Technical Manual (TM) for the Operation and Intermediate Maintenance with Illustrated Parts Breakdown (IPB) will be developed for the SETI System. The currently available JETI data will be supplemented to provide sufficient technical detail for SETI System use. The end item TM (AG-SETI-MIB-XXX) will address the SETI System in the T-25 configuration. Separate work packages will provide for the distinctive installation and facility interfaces. When specific information becomes available, it will be added to updates to this NTSP.



PART V - MPT MILESTONES

COG CODE	MPT MILESTONES	DATE	STATUS
DA	Conduct Analysis of MPT Requirements	Jul 02	Complete
DA	Develop Draft NTSP	Mar 03	Complete
DA	Conduct DT of A/E37T-24A Prototype and T64 TPS	Mar 03	Complete
TSA	Begin Factory Training for TECHEVAL Personnel (NATEC and NAVAIR Pax)	Mar 03	Complete
ОРО	Program Manpower and Training Resource Requirements	Apr 03	Complete
DA	Conduct TECHEVAL	Jun 03	Complete
DA	Award Phase II Production Contract	Mar 05	On schedule
PDA	Achieve IOC	Oct 05	Pending
Contractor	Begin Delivery of Production Units	FY05	On schedule
NATEC	Conduct OJT During Fleet Installation	FY05	Pending
DA	Fleet Introduction	FY05	Pending
PDA	Achieve NSD	Oct 07	Pending
PDA	Achieve MSD	Oct 07	Pending
Contractor	Complete Delivery of Production Units	FY08	On schedule



PART VI - DECISION ITEMS / ACTION REQUIRED

DECISION ITEM OR ACTION REQUIRED

COMMAND ACTION DUE DATE STATUS

No Decision Items or Actions Pending



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